Sheet 1 of 9

	Form PTO-1449 US Dept. of Commerce (REV. 8-83) PATENT & TRADEMARK OFFICE		ATTY DOCKET NO. 032136.09			APPLICATION NO. 10/679,151					
	INFORMAT	ION DISCLOSURE STATEMENT									
	(Use	several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI							
			i		FILING DATE GROUP October 6, 2003						
		U.S.	PATI	ENT DOCU	INT DOCUMENTS						
	EXAMINER DOCUMENT NUMBER D		DATE	NAME		CLASS	SUB CLASS				
AM	1	4,179,708	12-1	1979	Sheng et al.		-				
		4,249,793	02-1	1981	Uehara		_	,			
		4,275,288	06-1	1981	Makosch et al.			_			
		4,370,034	01-1	1983	Nohda						
		4,389,701	06-1	1983	Phillips		-	•			
		4,476,519	10-1	1984	Hayamizu		,				
		4,497,013	01-1	1985	Ohta		-	1			
		4,498,742	02-1	1985	Uchara		1	1			
		4,547,037	10-1	1985	Case		-	,			
		4,566,765	01-1	1986	Miyauchi et al.		_	/			
V		4,585,315	04-1	986	Sincerbox et al.						
		FOREIC	SN PA	ATENT DO	CUMENTS						
		DOCUMENT NUMBER	1	DATE	COUNTRY		CLASS	SUB CLASS			
AM		WO 88/08932	11-1	1988	WIPO		-	_			
		EP-A1-0 282 593	09-1	988	Europe		-	_			
		EP-A2-0 346 844	12-1	989	Europe						
		1,137,243	12-1	968	United Kingdom		-				
V		JP-A-1-295215	11-1	989	Japan (with abstract)			_			
		OTHER DOCUMENTS (Inc	ludin	g Author, T	itle, Date, Pertinent Pages, etc.)						
AM	'	IBM Technical Disclosure Bulletin, vol 127.	. 32, r	10. I, "Exte	nded Focal Depth Optical Microlitho	graphy",	, June 1989,	рр. 125-			
EXAMINE	RA la	x Matheus			DATE OF	ONSIDE		05			
Examiner:	Initial in	f citation considered, whether or not cit ance and not considered. Include copy of	ation this	is in conf	formance with M.P.E.P. 609: draw						



Sheet 2 of 9

Form PTO-1449 (REV. 8-83)	US Dept. of Commer PATENT & TRADEMARK OFFIC		ATTY D 032136.0	DOCKET NO.		APPLICATION NO. 10/679,151		
INFORM	MATION DISCLOSURE STATEMENT	1						
((Use several sheets if necessary)	ا		CANT(S) sa SHIRAISHI				
		ا	FILING October		GRO	UP		
	U.S	s. PAT	ENT DOC	UMENTS				
EXAMINER INITIAL	DOCUMENT NUMBER		DATE	NAME		CLASS	SUB CLASS	
AM	4,637,691	01-	1987	Uchara et al.		T +		
	4,769,750	09-	1988	Matsumoto et al.				
	4,851,882	07-	1989	Takahashi et al.		+		
	4,851,978	07-	1989	Ichihara				
	4,918,583	04-	1990	Kudo et al.		1 -		
	4,497,015	01-	1985	Konno et al.		1		
	4,619,508	10-	1986	Shibuya et al.				
	4,668,077	05-	1987	Tanaka		1		
	4,780,749	10-	1988	Schulman	·		_	
	4,828,392	05-	1989	Nomura et al.			_	
	4,853,756	08-	1989	Matsuki				
	4,931,830	06-	1990	Suwa et al.		1		
V	4,939,630	07-	1990	Kikuchi et al.		-		
	FORE	IGN P/	ATENT DO	OCUMENTS				
	DOCUMENT NUMBER		DATE	COUNTRY		CLASS	SUB CLASS	
		上						
	OTHER DOCUMENTS (In	ıcludin	g Author,	Title, Date, Pertinent Pages, etc.)				
								
								
THE PARTY OF THE P	/ 44 //			Т				
EXAMINER #	lon Mathews			DATE O	CONSIDE	ered 20	05	
Examiner: Initia	ial if citation considered, whether or not conformance and not considered. Include conv.	itation	is in con	formance with M.P.E.P. 609; dray				

Sheet 3 of 9

Form PTO-1449	US Dept. of Commerce	nce	ATTY D	OCKET NO.	AP	APPLICATION NO.			
(REV. 8-83)	PATENT & TRADEMARK OFFIC	Œ	032136.0			10/679,151			
INFORM	MATION DISCLOSURE STATEMENT								
((Use several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI						
				FILING DATE October 6, 2003 GROUP					
	U.S	PAT	ENT DOCUMENTS						
EXAMINER INITIAL	DOCUMENT NUMBER		DATE	NAME	E	CLASS	SUB CLASS		
AM	4,952,815	08-	1990	Nishi		_	_		
	4,970,546	11-	1990	Suzuki et al.		_			
	4,974,919	12-	1990	Muraki et al.		_	-		
	5,016,149	05-	1991	Tanaka et al.	-	-			
,	5,048,926	09-	1991	Tanimoto		-			
	5,098,184	03-	1992	van den Brandt et al.		-	_		
	5,153,773	10-	1992	Muraki et al.		1 7			
	5,091,744	02-	1992	Omata		-			
	5,153,419	10-	1992	Takahashi		-			
	5,191,374	03-	1993	Hazama et al.		-			
	5,237,367	08-	1993	Kudo		T			
	5,392,094	02-	1995	Kudo		-	-		
	5,673,102	09-	1997	Suzuki et al.		-			
V	RE. 34,634	06-	1994	Konno et al.					
	FOREI	GN P/	ATENT DO	CUMENTS		·			
	DOCUMENT NUMBER		DATE	COUNTR	RY	CLASS	SUB CLASS		
AM	JP-A-2-50417	02-1	1990	Japan (with abstract)					
		<u> </u>							
	OTHER DOCUMENTS (In	cludin	g Author, T	itle, Date, Pertinent Pages	s, etc.)				
					1 1 1 1 1 1 1 1-				
									
EXAMINER A	lan Matheus				DATE CONSID	ERED O	05		
Examiner: Initi	ial if citation considered, whether or not ci	itation	is in conf	ormance with M.P.E.P.	609; draw line t	hrough citati	on if not in		

Date: <u>January 8, 2004</u>



Sheet 4 of 9

Form PTO-1449 (REV. 8-83)	Form PTO-1449 US Dept. of Commerce (REV. 8-83) PATENT & TRADEMARK OFFICE		ATTY DOCKET NO. 032136.09 APPLICATION NO. 10/679,151				10.			
INFORM	MATION DISCLOSURE STATEMENT									
	(Use several sheets if necessary)	i	APPLICANT(S) Naomasa SHIRAISHI							
		ا	FILING DATE GROUP October 6, 2003							
	U.S.	. PAT	ENT DOCU	JMENTS						
EXAMINER INITIAL	DOCUMENT NUMBER		DATE	NAME		CLASS	SUB CLASS			
AM	5,208,629	05-1993		Matsuo et al.		1	_			
AM	5,264,898	11-1993		Kamon et al.		1 4				
AM	5,286,963	02-	1994	Torigoe		1 1				
AM	5,300,971	04-	1994	Kudo						
AM	5,305,054	04-	1994	Suzuki et al.		1	-			
AM	5,463,497	10-	1995	Muraki et al.						
, , , , , , , , , , , , , , , , , , ,										
-		† -								
		<u> </u>				1	·			
	FOREI	GN P	ATENT DO	CUMENTS		łt				
	DOCUMENT NUMBER		DATE	COUNTRY		CLASS	SUB CLASS			
<u></u>										
							_			
					-					
	OTHER DOCUMENTS (In	cludin	ig Author, T	itle, Date, Pertinent Pages, etc.)						
	·									
EXAMINER A	lan Mutheus			DATE	CONSIDE	ERED CO	75			
Examiner: Initi	ial if citation considered, whether or not cit	tation	is in conf							

Sheet	5	of	9	
SHOOL	•	V.	•	

		<u> </u>								
Form PTO-144 (REV. 8-83)	19	PATENT & TRADEMARK OFFIC	æ E	ATTY DO 032136.0	OCKET NO.		APPLICATION NO. 10/679,151			
INF	ORMATI	ION DISCLOSURE STATEMENT								
	(Use s	several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI						
				1	FILING DATE October 6, 2003 GROUP					
		U.S.	. PAT	TENT DOCUMENTS						
EXAMINER INITIAL		DOCUMENT NUMBER		DATE	NAMI	E	CLASS	SUB CLASS		
AM		3,770,340	11-	1973	Cronin et al.			-		
AM		4,241,389	12-	1980	Heimer		-	<u> </u>		
An		4,291,938	09-	1981	Wagner		-	_		
AM		4,749,278	06-	1988	Van der Werf		_	-		
AII		4,778,275	10-	1988	Van der Brink et al.			-		
AM	$\underline{\mathbb{I}}_{\underline{}}$	4,936,665	06-1990		Whitney			-		
FOREIGN PATENT DOCUMENTS										
		DOCUMENT NUMBER		DATE	COUNT	RY	CLASS	SUB CLASS		
			<u> </u>							
		OTHER DOCUMENTS (In								
AM		Optical Engineering, vol. 12, no. 2, Ma	ar/Apr	: 1973, "Dyr	namic Coherent Optical Sy	ystem", David J. Cr	onin et al., p	page 50-55		
AM		Optical Engineering, vol. 26, no. 4, Ap processing", Victor POL et al., page 31	ril 199 11-319	87, "Excime 8	r laser based lithography:	: a deep-ultraviolet v	wafer steppe	r for VLSI		
AM		SPIE vol. 1264 Optical/Laser Microlith lithography", S.T. Yang et al., page 47	nograf /7-485	phy III (1996	0), "Effect of central obscu	uration on image fo	rmation in p	projection		
AM		SPIE vol. 1674 Optical/Laser Microlith et al., page 741-752	nograf	ohy V (1992	!), "New imaging techniqu	ze for 64M-DRAM"	, Naomasa	SHIRAISHI		
AM		SPIE vol. 633 Optical Microlithograph Producing one-half Micron Linewidth"	y V (I	1986), "A co rge O. Reyn	oncept for a high resolutionolds, page 228-238	on Optical Lithograp	hic System	for		
AM		"On the use of an illumination azimuth page 1-11	diapl	nragm durin	g coaxial dark field illumi	ination", A. SZEGV	'ARI et al.,	1923,		
AM		Charles C. Thomas, Publisher, Springf George H. Needham, chapter XX, page	ield, I es 315	L, (1958) " 5-327; and p	The practical use of the mi	icroscope, including	g photomics	ography",		
AM		W.H. Freeman and Company, Publishe wave theory of microscopic image form	er, Sar nation	n Francisco by F. ZERI	1958, "Concepts of classic NIKE, pages 525-536	cal optics", John St	rong, Appen	idix K, "The		
EXAMINER	A 1.	an Mathews	- -			DATE CONSIDE	RED 2	005		
Examiner:	Initial if	citation considered, whether or not ci	tation	is in conf	ormance with M.P.E.P.	609; draw line the	rough citati	on if not in		

Date: <u>January 8, 2004</u>

Sheet 6 of 9

		TRADEMA								
Form PTO-144 (REV. 8-83)	9	US Dept. of Commerce PATENT & TRADEMARK OFFICE		ATTY Do	OCKET NO. 19		APPLICATION NO. 10/679,151			
INFO	ORMAT	ION DISCLOSURE STATEMENT								
	(Use	several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI						
				FILING DATE October 6, 2003				GROUP		
		U.S.	PAT	ENT DOCUMENTS						
EXAMINER INITIAL	<u> </u> .	DOCUMENT NUMBER		DATE	NAM	E		CLASS	SUB CLASS	
		FOREIC	IN P	PATENT DOCUMENTS						
		DOCUMENT NUMBER		DATE	COUNT	RY		CLASS	SUB CLASS	
						<u></u>				
		OTHER DOCUMENTS (Inc	ludin	g Author, 7	Title, Date, Pertinent Page	es, etc.)				
AM	SPIE vol. 1674 Optical/Laser Microlithography V (1992), "Subhalf micron lithography system with phase-shifting effect", Miyoko NOGUCHI et al., page 92-104 Microelectronic Engineering 11 (1990), Elsevier Science Publishers B.V., "Heterodyne holographic nanometer alignment for a wafer stepper", N. Nomura et al., page 133-136									
		Microelectronic Engineering 11 (1990), Elsevier Science Publishers B.V., "Heterodyne holographic nanometer alignment for a wafer stepper", N. Nomura et al., page 133-136								
AM		J. Vac. Sci. Technol. B 10(6), Nov/Dec 1992, "Investigation of single sideband optical lithography using oblique incidence illumination", Emi TAMECHIKA et al., page 3027-3031								
AM		"Resolution improvement with annular	illum	ination" Ma	y 15, 1992, Keiichiro TC	OUNAI et al.,	11 pag	ges		
AM		IEEE 1992, "Characterization of super-	resoli	ution photol	ithography", H. FUKUD.	A et al., page	49-52			
AM		Jpn. J. Appl. Phys. Vol. 31 (1992), Part lithography", Hiroshi FUKUDA et al., p	l, no	o. 12B, Dec 1126-4130	ember 1992, "A new pup	oil filter for an	nular i	Ilumination	in optical	
AM		Elsevier, PWN - Polish Scientific Publis Maksymilian PLUTA, page 460-463	shers,	1988, "Ad	vanced light microscopy"	, vol. 1, Princ	iples a	nd Basic Pro	operties,	
AM		Microscope Publications, Ltd. 1974, "T formation", H. Wolfgang ZIELER, page	he op 32-5	otical perfor	mance of the light micros	cope, physics	al optic	al aspects of	f image	
AM		Marcel Dekker, Inc., New York, Basel, Modeling", Chris A. MACK, page 109-	Micr 270	olithograph	y, science and technology	, (1998) Cha	pter 2,	"Optical Lit	thography	
AM		McGraw-Hill Book Company, San Fran optical imaging systems, Joseph W. Goo	cisco odma	, Introducti n, page 101	on to Fourier Optics, (19	68) Chapter 6	5, "Free	quency analy	sis of	
AM		Elsevier, PWN-Polish Scientific Publish Maksymilian PLUTA, page 100-113	ers l	989, Advan	ced Light Microscopy, V	olume 2, Spe	cialize	d Methods,		
AM		J. Vac. Sci. Technol. B 9(6), Nov/Dec 1 the optical axis", Satoru ASAI et al., pag	991, 3e 27	"Improving 88-2791	projection lithography in	nage illumina	tion by	using source	es far from	
AM		North-Holland Publishing Company, 19	80, 0	Chapter 2, "	Optical methods for fine	line lithograp	hy", B.	J. LIN, page	: 107-232	
EXAMINER	A lo	n Mathaus				DATE COL	NSIDE	RED 200	5	
Examiner: I	nitial if	citation considered, whether or not citation and not considered. Include considered	ation	is in confe	ormance with M.P.E.P.	609; draw I	ine the	rough citation	on if not in	

Sheet <u>7</u> of <u>9</u>

Form PTO-1449 (REV. 8-83)							PLICATION NO. 679,151		
INFOR	MATION DISCLOSURE STATEMENT								
	(Use several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI						
				FILING DATE GROUP October 6, 2003					
	Ų.S	. PATI	ENT DOCU						
EXAMINER INITIAL	DOCUMENT NUMBER		DATE	NAME		CLASS	SUB CLASS		
AM	3,492,635	1/70	0	Farr		-			
AM	3,639,039	2/72	2	Rhodes, Jr.			•		
AH	3,658,420	4/72	2	Axelrod		7			
AM	4,472,023	9/84	4	Yamamoto					
AH	4,854,669	8/89	9	Birnbach et al.					
AN	4,739,373	4/88	8	Nishi et al.					
AM	5,121,160	6/92	2	Sano et al.					
AM	5,307,207	4/94	4	Ichihara					
AM	5,004,348	4/91		Magome		-			
AM	3,630,598	12/7	71	Little					
AM	5,440,426	8/95	5	Sandstrom					
AM	5,446,587	8/95	5	Kang et al.					
•	FOREI	GN P/	ATENT DO	CUMENTS					
	DOCUMENT NUMBER		DATE	COUNTRY		CLASS	SUB CLASS		
	59-83165	05/8	34	Japan	_				
		Ī							
	OTHER DOCUMENTS (In	cludin	g Author, T	Title, Date, Pertinent Pages, etc.)					
EXAMINER A	Flan Mathews	<u> </u>		DATEC	ONSIDE	ERED OC	 >5		
Examiner: Init	itial if citation considered, whether or not ci	itation	is in conf	formance with M.P.E.P. 609; draw					

Sheet 8 of 9

Form PTO-1449 (REV. 8-83)	PATENT & TRADEMARK OFFI	rce CE	ATTY D 032136.0	OCKET NO. 19	APPLICATION NO. 10/679,151					
INFORM	IATION DISCLOSURE STATEMENT									
((Use several sheets if necessary)		APPLICANT(S) Naomasa SHIRAISHI							
			FILING October		GR	GROUP				
	U.s	S. PAT	INT DOCUMENTS							
EXAMINÉR INITIAL	DOCUMENT NUMBER		DATE	NAM	E	CLASS	SUB CLASS			
AM	5,245,384	9/9:	3	Mori		1	1			
AM	5,329,336	7/9	4	Hirano et al.	, <u>-</u>		^			
AM	5,309,198	5/94	4	Nakagawa		-	1			
AM	4,207,370	6/8	0	Liu			1			
AM	5,638,211	6/9	7	Shiraishi	···					
AM	4,132,479	01-	1979	Dubroeucq et al.			1			
AM	4,780,747	10-	1988	Suzuki et al.						
AM	4,789,222	12-	1988	Ota et al.			_			
AM	4,988,188	01-	1991	Ohta			_			
AM	4,992,825	02-	1991	Fukuda et al.		_				
		<u></u>								
	FORE	IGN PA	ATENT DO	CUMENTS	· "					
	DOCUMENT NUMBER		DATE	COUNT	RY	CLASS	SUB CLASS			
AH	ЛР-A-56-12615	02-	1981	Japan (with abstract)		-	_			
AM	JP-A-58-16214	01-	1983	Japan (with abstract)						
AM	JP-A-59-49514	03-	1984	Japan (with abstract)						
·	OTHER DOCUMENTS (I	ncludin	g Author, 7	litle, Date, Pertinent Page	es, etc.)					
				,						
		-								
				_		·-·				
			•							
EXAMINER A	on Mathau-				DATE CONSID	DERED - 200	5			
	d if citation considered, whether or not commence and not considered. Include conv					through citati	on if not in			



Sheet 9 of 9

		PADEMAR							
Form PTO-1449 (REV. 8-83)		US Dept. of Commerc PATENT & TRADEMARK OFFIC	æ E	ATTY DOCKET NO. 032136.09		ļ	APPLICATION NO. 10/679,151		
INFO	RMAT	ION DISCLOSURE STATEMENT							
	(Use	several sheets if necessary)			ICANT(S) asa SHIRAISHI	<u>.</u>			
					G DATE er 6, 2003		GROUP		
		U.S.	PATI	ENT DO	CUMENTS				
EXAMINER INITIAL		DOCUMENT NUMBER		DATE	NAM	IE.		CLASS	SUB CLASS
AM		3,776,633	12-	1973	Frosch et al.			T	
AN		4,370,026	01-	1983	Dubroeucq et al.				
AM		4,814,829	03-1	1989	Kosugi et al.				_
AM		4,841,341	06-1	1989	Ogawa et al.				
AN		4,947,413	08-	1990	Jewell et al.			-	_
An		5,337,097	08-1	1994	Suzuki et al.			1	-
AM		3,729,252	04-1	1973	Nelson			1	
FOREIG				ATENT I	DOCUMENTS				
		DOCUMENT NUMBER	D	ATE	COUNTR	RY		CLASS	SUB CLASS
71		61-91662	05-1	986	Japan (with translation)			-	
417		61-41150	02-1	986	Japan (with translation)			-	
AM		62-50811	10-1	987	Japan			+	
AM		0352975	199	0	EPO			+	
AM		2-48090	10-1	990	Japan			-	
		OTHER DOCUMENTS (Inc	ludin	g Author	, Title, Date, Pertinent Page	es, etc.)			
AM		"Illuminator Modification of an Optical November 6-7, 1989.	Align	er" by D	elmer L. Fehrs et al., KTI N	Aicroelectronic	s Sem	ninar,	
MM		"Pattern Recognition Automatic Fine A	lignm	ent" by [D.H. Berry, Proc SPIE vol. 3	334, pp. 10-16	(1982	2).	
A1		Lens aberration measurement technique Hitachi Ltd., 1998.	e usin	g attenua	ated phase-shifting mask, Al	kira Imai et al.	, Devi	ice Developn	ment Center,
								<u> </u>	
·									
EXAMINER A	la	n Matheus				DATE CON	ISIDE	RED 00	5
Examiner: In	itial if nforma	citation considered, whether or not cit ance and not considered. Include copy of	ation this f	is in co	onformance with M.P.E.P.	609: draw lis			
					vommenteadon to ap	piivanii.			